

Claims

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1 ~~1. A method of calculating routes for sending user~~
2 data packets via information handling devices which are
3 interconnected in a communications network, comprising
4 including in each of said user data packets,
5 destination address information conforming to an addressing
6 convention of any one of two or more different independent
7 protocol suites,
8 always calculating said route for a user data packet
9 using a route calculation algorithm corresponding to the
10 same routing protocol, chosen from an arbitrary protocol
11 suite, regardless of the addressing convention to which the
12 user data packet conforms,
13 said route being calculated without converting the
14 destination information from the addressing convention to
15 ~~which it conforms to another addressing convention.~~

1 2. The method of claim 1 wherein there are exactly
2 two said protocol suites.

1 3. The method of claim 1 or 2 further comprising
2 P_i sending to said information handling devices, link
3 state packets conforming to said routing protocol, and
4 P_i calculating said route based on information
5 contained in said link state packets.

1 4. The method of claim 1 or 2 wherein said routing
2 protocol comprises OSI IS-IS routing protocol.

Claim
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Sub A2
1 ~~5. A method for calculating routes for sending user~~
2 data packets via information handling devices which are
3 interconnected in a communications network, said information
4 handling devices including (a) single-protocol information
5 handling devices capable of recognizing and forwarding only
6 user data packets which conform to a single protocol suite,
7 and (b) multi-protocol information handling devices capable
8 of recognizing and forwarding user data packets which
9 conform to any one of two or more protocol suites,
10 comprising
11 using a routing protocol to automatically
12 predetermine at which information handling devices to
13 ~~encapsulate and to decapsulate a given packet.~~

Sub B1
1 ~~6. The method of claim 5 wherein said information~~
2 handling devices are organized in areas and all of said
3 information handling devices within a single said area are
4 at least capable of recognizing and forwarding user data
5 packets which conform to the same one of said protocol
6 ~~suites.~~

6/ 5
1 7. The method of claim 6 wherein the one of said
2 protocol suites for which the information handling devices
3 of one of said areas are capable differs from the one of
4 said protocol suites for which the information handling
5 devices of another one of said areas are capable.

Claims
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1 ~~8. The method of claim 5 wherein a given area may~~
2 include (a) single-protocol information handling devices
3 capable of recognizing and forwarding only user data packets
4 which conform to a first protocol suite, (b) single-protocol
5 information handling devices capable of recognizing and
6 forwarding only user data packets which conform to a second
7 different protocol suite, and (c) at least one
8 multi-protocol information handling device capable of
9 recognizing and forwarding user data packets which conform
10 to at least said first and second protocol suites.

1 9. The method of claim 8 wherein one of said
2 multi-protocol information handling devices is capable of
3 recognizing and forwarding user data packets which conform
4 to every protocol suite that is used by any other
5 ~~information handling device in said given area.~~

B 1 ⁹ 10. The method of claim ~~5, 6, 7, 8~~ ^{5, 6, 7, 8} or ~~8~~ wherein one
2 of said protocol suites comprises the TCP/IP protocol suite
3 and another of said protocol suites comprises the OSI
4 protocol suite.

B 1 ¹² 11. The method of claim ~~5, 6, 7, 8~~ ^{5, 6, 7, 8} or ~~8~~ wherein
2 there are exactly two of said protocol suites.

1 ¹³ 12. The method of claim ~~11~~ ¹² wherein one of said
2 protocol suites comprises TCP/IP and the other of said
3 protocol suites comprises OSI.

1 ¹⁸
2 ~~13~~. The method of claim ~~5, 6, 7, 8~~ or ~~8~~ further
3 comprising
4 sending to said information handling devices, link
5 state packets conforming to said one of said routing
6 protocols, and
7 calculating said route based on information
8 contained in said link state packets.

1 ¹⁰
2 ~~14~~. The method of claim ~~9~~ further comprising
3 sending to said information handling devices, link
4 state packets conforming to said one of said routing
5 protocols, and
6 calculating said route based on information
7 contained in said link state packets.

1 ¹⁶
2 ~~15~~. The method of claim ~~12~~ further comprising
3 sending to said information handling devices, link
4 state packets conforming to said one of said routing
5 protocols, and
6 calculating said route based on information
7 contained in said link state packets.

1 ¹⁴
2 ~~16~~. The method of claim ~~13~~ further comprising
3 sending to said information handling devices, link
4 state packets conforming to said one of said routing
5 protocols, and
6 calculating said route based on information
7 contained in said link state packets.

1 ¹⁹~~17~~. The method of claim ~~5, 6, 7, 8~~ or ~~8~~ wherein
2 said routing protocol used to automatically predetermine at
3 which information handling devices to encapsulate and to
4 decapsulate a given packet comprises OSI IS-IS routing
5 protocol.

1 ¹¹~~18~~. The method of claim ⁹~~10~~ wherein said routing
2 protocol used to automatically predetermine at which
3 information handling devices to encapsulate and to
4 decapsulate a given packet comprises OSI IS-IS routing
5 protocol.

1 ¹⁷~~19~~. The method of claim ¹²~~11~~ wherein said routing
2 protocol used to automatically predetermine at which
3 information handling devices to encapsulate and to
4 decapsulate a given packet comprises OSI IS-IS routing
5 protocol.

1 ¹⁵~~20~~. The method of claim ¹³~~12~~ wherein said routing
2 protocol used to automatically predetermine at which
3 information handling devices to encapsulate and to
4 decapsulate a given packet comprises OSI IS-IS routing
5 protocol.

Sub
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1 ~~21. A method of enabling user data packets to be~~
2 forwarded from one local area network to another by a device
3 which is capable of acting as a router to recognize and
4 forward user data packets which conform to a first protocol
5 suite and is capable of acting as a bridge to recognize and
6 forward user data packets which conform to at least a second
7 protocol suite, said method comprising

8 for a user data packet which conforms to said first
9 protocol suite and is addressed to a single address which is
10 not an address of the device, causing the device to act as a
11 ~~bridge rather than as a router.~~

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